

WHAT IS CLAIMED IS:

1. An image comparison apparatus comprising:
observation image capturing means for capturing at
least one of a macroscopic observation image of a
specimen or a microscopic observation image of the
specimen;

photographing means for photographing an
observation image captured by the observation image
capturing means;

recording means for recording a reference image
prepared in advance; and

display means for displaying the observation image
photographed by the photographing means as a comparison
image, and also displaying the reference image recorded
on the recording means on the display means so as to
allow comparison between the comparison image and the
reference image.

2. The apparatus according to claim 1, wherein
the observation image capturing means comprises at
least one of

illumination means for irradiating the specimen
with light and making scattered light therefrom
observable,

illumination means for irradiating the specimen
with light and making fluorescence therefrom
observable,

illumination means for irradiating the specimen

with polarized light and making scattered light
therefrom observable, and

illumination means for transmitting light through
the specimen and making transmitted light observable.

5 3. The apparatus according to claim 1, wherein
the display means displays the comparison image as a
live image.

 4. The apparatus according to claim 1, wherein
the display means displays an addition image obtained
10 by adding the comparison image and the reference image
at an arbitrary ratio.

 5. The apparatus according to claim 1, wherein
the display means alternately displays the comparison
image and the reference image at predetermined time
15 intervals.

 6. The apparatus according to claim 1, wherein
the display means displays at least one of the
comparison image and the reference image after
adjusting brightness by integration processing.

20 7. The apparatus according to claim 1, wherein
the display means displays the comparison image and the
reference image upon further superimposing a lattice
with a predetermined spacing thereon.

 8. The apparatus according to claim 1, wherein
25 the display means performs subtraction between the
comparison image and the reference image and performs
display on the basis of the subtraction result.

9. An image comparison apparatus comprising:

a macro-observation unit which captures a
macroscopic observation image of a specimen;

5 a micro-observation unit which captures a
microscopic observation image of the specimen;

a stage which moves the specimen between the
macro-observation unit and the micro-observation unit;

a camera which photographs an observation image of
a specimen on the stage which is captured by the
10 macro-observation unit and the micro-observation unit;

optical path switching means for switching an
optical path from the macro-observation unit or the
micro-observation unit to the camera;

a recording medium which records an observation
15 image photographed by the camera as a reference image;
and

display means for displaying the observation image
photographed by the camera as a comparison image and
also displaying the reference image recorded on the
20 recording medium so as to allow comparison between the
images.

10. The apparatus according to claim 9, further
comprising at least one of a polarization illumination
source, epi-illumination source, fluorescence
25 illumination source, focal illumination source,
transmitted illumination source, and infrared
illumination source, and means for operating brightness

and ON/OFF operation of the illumination source.

11. The apparatus according to claim 9, wherein the display means includes

5 a first image display area in which a reference image is displayed,

a second image display area in which a comparison image is displayed, and

10 a third image display area in which the reference image and the comparison image are simultaneously displayed, and

allows comparison and observation of the reference image and the comparison image in the third display area.

12. The apparatus according to claim 11, wherein
15 the apparatus further comprises

split image display means having a function capable of vertically or horizontally splitting the third image display area of the display means, displaying the split first and second partial areas as
20 a reference image display area and a comparison image display area, respectively, and vertically and horizontally moving positions of the images,

overlap image display means having a function capable of displaying, in the third image display area,
25 an image obtained by adding an image obtained by multiplying a luminance ratio between a reference image and a comparison image by m/n where \underline{n} and \underline{m} are

arbitrary integers ($n \geq m$) to an image obtained by multiplying the luminance ratio by $(n - m)/n$, and gradually adjusting the luminance ratio between the reference image and the comparison image by changing the integers \underline{n} and \underline{m} , and

image switching display means having a function of capable of alternately switching and displaying a reference image and a comparison image in the third image display area at predetermined time intervals, and adjusting an image switching time, and

allows comparison and observation of the reference image and the comparison image in the third image display area.

13. An image comparison method comprising:

capturing at least one of a macroscopic observation image and a microscopic observation image of a specimen;

photographing the captured observation image; and

displaying an entire or part of a comparison image obtained from the photographed observation image and an entire or part of a reference image prepared in advance so as to allow comparison therebetween.

14. The method according to claim 13, wherein a comparison image or reference image obtained from the observation image is displayed after brightness is adjusted by integration processing.

15. The method according to claim 13, wherein the

comparison image and the reference image are displayed while a lattice with a predetermined spacing is superimposed thereon.

16. The method according to claim 13, wherein the
5 displaying includes displaying at least one of the comparison image and the reference image in the form of a live image.

17. An image comparison method comprising:
capturing a macroscopic observation image or a
10 microscopic observation image of a specimen;
photographing the captured observation image; and
displaying an addition image obtained by adding a comparison image obtained from the photographed observation image to a reference image prepared in
15 advance at an arbitrary ratio.

18. The method according to claim 17, wherein a comparison image or reference image obtained from the observation image is displayed after brightness is adjusted by integration processing.

20 19. The method according to claim 17, wherein the comparison image and the reference image are displayed while a lattice with a predetermined spacing is superimposed thereon.

20. An image comparison method comprising:
25 capturing a macroscopic observation image or a microscopic observation image of a specimen;
photographing the captured observation image; and

alternately displaying a comparison image obtained from the photographed observation image and a reference image prepared in advance at predetermined time intervals.

5 21. The method according to claim 20, wherein a comparison image or reference image obtained from the observation image is displayed after brightness is adjusted by integration processing.

10 22. The method according to claim 20, wherein the comparison image and the reference image are displayed while a lattice with a predetermined spacing is superimposed thereon.

 23. An image comparison method comprising:
 capturing a macroscopic observation image or a
15 microscopic observation image of a specimen;
 photographing the captured observation image; and
 performing subtraction between the photographed
 observation image and a reference image prepared in
 advance, and performing displaying on the basis of the
20 subtraction result.

 24. An image comparison method which is applied to a system in which at least two image comparison apparatuses and an image server capable of storing at least one image are connected through a network capable
25 of data communication, wherein

 in each of the image comparison apparatuses, a reference image used for comparison with a comparison

image acquired from a specimen can be read out from the image server through the network.

25. A computer program product configured to store program instructions for execution on a computer system enabling the computer system to perform:

capturing at least one of a macroscopic observation image and a microscopic observation image of a specimen;

photographing the captured observation image; and
10 displaying an entire or part of a comparison image obtained from the photographed observation image and an entire or part of a reference image prepared in advance so as to allow comparison therebetween.

26. The program according to claim 25, wherein a
15 comparison image or reference image obtained from the observation image is displayed after brightness is adjusted by integration processing.

27. The program according to claim 25, wherein the comparison image and the reference image are displayed
20 while a lattice with a predetermined spacing is superimposed thereon.

28. The program according to claim 25, wherein the displaying includes displaying at least one of the comparison image and the reference image in the form of
25 a live image.

29. A computer program product configured to store program instructions for execution on a computer system

enabling the computer system to perform:

capturing a macroscopic observation image or a
microscopic observation image of a specimen;

photographing the captured observation image; and

5 displaying an addition image obtained by adding a
comparison image obtained from the photographed
observation image to a reference image prepared in
advance at an arbitrary ratio.

30. The program according to claim 29, wherein a
10 comparison image or reference image obtained from the
observation image is displayed after brightness is
adjusted by integration processing.

31. The program according to claim 29, wherein the
comparison image and the reference image are displayed
15 while a lattice with a predetermined spacing is
superimposed thereon.

32. A computer program product configured to store
program instructions for execution on a computer system
enabling the computer system to perform:

20 capturing a macroscopic observation image or a
microscopic observation image of a specimen;

photographing the captured observation image; and

alternately displaying a comparison image obtained
from the photographed observation image and a reference
25 image prepared in advance at predetermined time
intervals.

33. The program according to claim 32, wherein a

comparison image or reference image obtained from the observation image is displayed after brightness is adjusted by integration processing.

34. The program according to claim 32, wherein the
5 comparison image and the reference image are displayed while a lattice with a predetermined spacing is superimposed thereon.

35. A computer program product configured to store program instructions for execution on a computer system
10 enabling the computer system to perform:

capturing a macroscopic observation image or a microscopic observation image of a specimen;

photographing the captured observation image; and

performing subtraction between the photographed
15 observation image and a reference image prepared in advance, and performing displaying on the basis of the subtraction result.

36. A computer program product which is applied to a system in which at least two image comparison
20 apparatuses and an image server capable of storing at least one image are connected through a network capable of data communication, wherein

in each of the image comparison apparatuses, a reference image used for comparison with a comparison
25 image acquired from a specimen can be read out from the image server through the network.

37. An image comparison method, wherein a display

window designated by a control apparatus connected,
through a network capable of data communication, to
an apparatus including photographing means for
photographing an observation image of a specimen,
5 display means for comparing the photographed
observation image, and means for communicating a
display method for image comparison is displayed by
communication.